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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION N
10/091,742	03/05/2002	James H. Anderson	56,492 (71699)	8190

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EXAMINER	
ASHBURN, STEVEN L	
ART UNIT	**PAPER NUMBER**
3714	

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,742	ANDERSON ET AL.	
	Examiner	Art Unit	
	Steven Ashburn	3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37,44,46-63 and 74-89* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37,46-63 and 74-89* is/are rejected.

7)☒ Claim(s) *44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

The claims are objected to because they are incorrectly numbered. In particular, claim 20 appears twice. As a result, all subsequent claims are misnumbered and it is unclear whether claims 22, 26, 28, etc. should depend from claim 20 or claim 21. This objection a maintained from the office action dated January 2, 2003. Correction is required.

Claim Rejections - 35 USC § 112

The rejection of claim 8 under 35 U.S.C. 112, second paragraph is withdrawn.

Claim Rejections - 35 USC § 103

Claims 1-6, 9, 10, 16-23, 25, 28, 33-35, 37, 47, 48, 52-55, 57, 58, 61, 62 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai et al., *Parametrical Modeling Based on Multi-Layered Approach for Design and Validation of Catheterization Devices*, Proceedings of the IASTED Intl. Conf., Computer Graphics and Imaging, (Jun. 4, 1998) (hereinafter "Cai") in view of Chosack et al., WO 99/38141 (July, 29, 1999).

The examiner notes that Cai was authored by two inventors of the claimed invention and published in 1998. Thus it qualifies as prior art under 35 U.S.C. 102(b) and cannot be overcome by an affidavit or declaration under 37 CFR 1.131.

Claims 1 and 75-86: Cai discloses a system for simulating the movement of a medical device in the body cavity of a patient. The system allows a virtual medical device to be inserted by a user into a virtual human vasculature. *See p. 33.* The device and vascular are modeled using a real-time finite element analysis engine embedded in the simulator. *See p. 34.* Cai discloses all the features of the claims except a manikin providing an interface for receiving the second end of the medical device wherein the

interface comprises a directional force feedback mechanism for exerting direction force on the medical device in response to a feedback signal received by the force feedback mechanism. Regardless, as discussed below, this feature would have been obvious to one of ordinary skill in the art at the time of the invention in view of Chosack.

Chosack discloses a system for simulating medical procedures performed on a subject. *See abstract.* The system includes a manikin providing an interface for receiving the second end of the medical device wherein the interface comprises a directional force feedback mechanism for exerting direction force on the medical device in response to a feedback signal received by the force feedback mechanism. *See fig. 1, 5(a); p. 10:4-14; 21-3-17*

In view of Chosack, it would have been obvious to an artisan at the time of the invention to modify the simulator disclosed by Cai, wherein virtual medical device is inserted by a user into a virtual human vasculature, to add the features of an interface for receiving the second end of the medical device wherein the interface comprises a directional force feedback mechanism for exerting direction force on the medical device in response to a feedback signal received by the force feedback mechanism. As suggested by Chosack, use of a manikin would enhance the simulation by providing more realistic medical training which replicates the tactile and visual sensations experienced during a procedure and thereby provide improved medical training. *See p. 1:27-30. 2:29-3:6.*

Claims 2 and 52: Chosack additionally teaches having the directional force feedback system provide resistance to forward motion but enable free reverse motion in response to the feedback signal. *See p. 19:3-11, 21:32-22:7, 25:13-26:2.* For example, when the simulated device is driven into the intestinal wall ,the instrument simulates the resistance to forward motion felt due to the collisoin and the lack of resistance to reverse motion when pulled back from the wall without obstruction.

Claim 3: Chosack additionally teaches the directional force feedback mechanism comprising a rolling element coupled to the second end and an internal surface of the simulated body cavity or lumen comprising an oblique slot for receiving the rolling element. *See fig. 7(a)-(d); p. 24:16-25:2.*

Claim 4: Chosack additionally teaches, in response to a feedback signal, forward movement of the second end causes the rolling element to be received by the slot thereby causing resistance to forward motion. *See id.*

Claim 5: Chosack additionally teaches a motor controlling the movement of the rolling element. *See p. 25:13-21.*

Claim 6: Chosack additionally teaches a tactile feedback mechanism. *See id.*

Claim 9: Chosack additionally teaches continuously tracking the second end of the medical device. *See p. 6:19-22, 12:15-21.*

Claim 10: Chosack additionally teaches an encoder for tracking the translation of the device and an encoder for tracking the rotation of the device. *See p. 10:31-11:1, 21:18-28.*

Claim 11: Chosack additionally teaches a tracking unit comprising a light source, a signal processing circuit and one or more optical sensors, wherein the tracking unit is placed within the interface in optical communication with the device when it is inserted in the cavity or lumen. *See fig. 9(a)-(d); 28:18-29:2.* More specifically, when the device is inserted in the manikin, various tools can be inserted into the device, wherein the tools are tracked with optical sensors. *See id.*

Claim 16: Chosack teaches one or more additionally medical devices comprising a first end for manipulation by a user and a portion comprising a second end for insertion into the simulated body cavity are inserted into the interface, and wherein the position of each medical device is independently monitored. *See fig. 9(a)-(e); p. 28:1-29:2.*

Claims 17, 37, 61, 87: Chosack teaches various medical devices including endoscopes, forceps and coils. *See id.* The remaining devices are admitted equivalents.

Claim 18: Chosack additionally teaches a system comprised of a table for placing a manikin and a processor connectable to a network. *See fig. 1, 3B(80).*

Claim 19: Chosack additionally teaches the system has at least one user device connected to the network and the device comprising a selectable display interface for displaying a three-dimensional representation of a simulated body cavity of a patient. *See id.*

Claim 20: Chosack additionally teaches a first display interface displaying a three dimensional representation of a medical device corresponding to a medical device which is interfaced with the manikin and wherein the system simulates on the display the movement of the medical device within the simulated body cavity of the manikin in real-time when the user manipulates the medical device interfaced with the manikin. *See fig. 2-3(a); p. 12:5-14, 7:19-25, 10:23-29.*

Regarding claims 20 and 21: Chosack additionally discloses a simulated scanning display for displaying a two-dimensional image of a simulated body cavity. *See p. 7:4-15.*

Claim 22: Chosack additionally discloses a simulated scanning display being part of a simulated scanning device. *See p. 7:16-18, 14:8-20.*

Claim 23: Chosack additionally discloses a simulated scanning device being an x-ray imaging system. *See id.*

Claim 25: Chosack additionally discloses a re-configurable control panel for performing image acquisition selection, image display. *See fig. 2, 3(42); p. 12:5-32.*

Claim 28: Chosack discloses the system is connectable to a database of patient images or medical data. *See fig. 2, 3(42); p. 12:5-32.*

Claim 30: Chosack discloses patient images of a body cavity from a patient affected by a pathology. *See id.*

Claim 33: Chosack discloses displaying an image or medical data on a user display in response to accessing the data. *See fig. 2, 3(42); p. 12:5-32.*

Claims 34 and 35: Chosack discloses a user display interface providing access to the database and wherein, in response to accessing it, the system displays an image and/or medical data on the display. *See id.*

Claim 47: Chosack discloses simulating deformation of the body cavity by the medical device. *See p. 13:6-13, 16:2-19.*

Claim 48: *Chosack* discloses a system simulating an operation of a medical device for a variety of procedures including surgical procedures. *See p. 28:1-7, 29:19-27.*

Claim 49: Cai discloses simulating the movement of the medical device in a blood vessel. *See fig. 2; p. 33.*

Claim 53: Chosack discloses a processor in communication with the directional force-feedback mechanism, the processor connectable to a network; a first user dive in communication with the processor, the first user device comprising a first display interface for displaying a representation of a body cavity; and for providing access to a database of three-dimensional images of body cavities and lumens from a plurality of different patients wherein the response to the selection, the representation is displayed on the first display interface. *See fig. 1, 2, 3A, 3B, 5A, 5B; 9. 9:29-11:5; 11:26-19:20.*

Claim 54: Cai discloses a first display interface a displays a three-dimensional representation of the medical device and wherein the system simulates the movement of the medical device within the body cavity or lumen in real-time as a first user manipulates the medical device which is interfaced with the manikin. *fig. 2; p. 33.*

Claim 55: Chosack discloses a monitoring station comprising a second display interface in communication with the processor and the first display interface and wherein the second display interface provides a second user with access to the database. *See p. 19:12-20:12.*

Claim 57: Chosack discloses simulating the deformation of a body cavity or lumen in response to movement of the medical device by the first user and displays the representation of the deformation on the first display interface. *See p. 16:2-31.*

Claim 58: Chosack discloses performs an operation on the simulated body cavity or lumen and the first display interface displays a simulation of the operation. *See fig. 2.*

Claim 62: Chosack discloses inserting one or more additional medical devices into the simulated body cavity or lumen, and the movement of each medical device is independently monitored. *See fig. 9A-9E; p. 28:1-29:2.*

Claims 7, 8, 63 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai in view of Chosack, as discussed above, in further view of view of Rosenberg et al., U.S. Patent 5,959,613 (Sep. 28, 1999).

Claims 7, 63, 74, 88 and 89: The simulator suggested by Cai in view of Chosack does not describe the feature of providing continuous vibrational feedback to a user holding the device. Rosenberg discloses an analogous system which for simulating medical devices such as endoscopes. *See col. 5:18-27, 11:18-34.* The system provides continuous vibrational feedback to the user. *See col. 14:30-64.* In view of Rosenberg, it would have been obvious to an artisan at the time of the invention to modify the simulator suggested by Cai in view of Chosack, wherein the system simulates vibration of tissues, to add the feature of continuous vibration feedback to a user holding a device. As suggested by Rosenberg, the modification would enhance the simulator by providing accurate and realistic tactile sensations to the user. *See col. 4:3-26.* In addition, as suggested by Chosack, the providing more realistic medical training

which replicates the tactile and visual sensations experienced during a procedure provides improved medical training. *See p. 1:27-30. 2:29-3:6.*

Claim 8: The simulator suggested by Cai in view of Chosackdescribes a medical device wherein a unit on the device's second end provides tactile feedback. Rosenberg describe providing vibration with a continuously rotating motor. *See col. 9:53-64.* Hence, when the combination is taken as a whole, it suggests to an artisan at the time of the invention medical device simulator with a continuously rotating motor its second end providing vibrational feedback to increase the realism of the system.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai in view of Chosack, as applied discussed above, in further view of Belson et al., U.S. 6,610,007 B2 (Aug. 26, 2003).

Claim 12: The simulator suggested by Cai in view of Chosack does not describe light from a light source reflecting on the device when inserted and wherein the reflected light is received by one or more optical sensors. Belson discloses a method for tracking endoscopes whereby the scope's position is detected by reflecting on the device and having the reflected light is received by one or more optical sensors. *See col. 13:3-21.* Hence it is known to track the position of endoscopes by detecting light reflect off the device. In view of Belson, it would have been obvious to modify Chosack, wherein the linear position of a device is tracked inside a manikin's body, to add the feature of tracking the device by describe light from a light source reflecting on the device when inserted and wherein the reflected light is received by one or more optical sensors because the method is equivalent known in the art for the same purpose of tracking linear position.

Claim 13: Chosack additionally discloses simulating the movement of the device in real-time on the user display in response to detection of movement by position sensors. *See pp. 6:15-17:7:2.*

Claim 14: Chosack describes tracking the Cartesian position (x, y, z) of the device. *See p. 21:18-31.* However neither Cai, Chosack nor Belson expressly describe placing position sensors perpendicular to one another. Because position sensors typically sense one direction of movement, it notoriously well known to position the sensors perpendicularly to allow them to sense position along each Cartesian axes. For example, common a computer mouse places optical encoders in perpendicular positions to track the two-dimensional (x, y) position of the device. Hence, by official notice, in the system suggested by the combination of Cai, Chosack and Belson , wherein the Cartesian position is tracked by reflected light sensors, it would have been obvious to an artisan at the time of the invention to place the placing position sensors perpendicular to one another to capture to Cartesian position of the device.

Claim 15: Belson additionally describes a tracking unit configured as a rail along which the device can move. *See fig. 3-5.*

Claims 24 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai in view of Chosack, as applied above, in further view of Simon et al., U.S. Patent 6,470,207 B1 (October 22, 2002) and Saunders, U.S. Patent 6,572,376 B1 (Jun. 3, 2003).

Claim 24: The simulator suggested by Cai in view of Chosack does not describe a movable C-arm for a scanning device within scanning distance of the manikin. Simon discloses methods for performing endoscopic surgery wherein scanner is coupled to a C-arm within scanning distance of a patient. It is known in simulation system to increase the realism of the system by simulating actual devices and thereby provide more effective training. *See, e.g., Saunders, col. 1:47-52, 2:8-16.* Hence, in

view of Simon and Saunders, it would have been obvious to an artisan at the time of the invention to modify the simulator suggested by Cai in view of Chosack, wherein a scanning device is simulated, to add the feature of a movable C-arm for a scanning device within scanning distance of the manikin and thereby increase the realism and effectiveness of training.

Claim 32: Simon describes using a foot pedal to activate the scanning device. *See col. 11:44-64.*

Claims 26, 27, 29 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai in view of Chosack, as applied above, in further view of Pollak et al., U.S. 6,106,297 (Aug. 22, 2000) and Issenberg et al., "Simulation Technology for Health Care Professional Skills Training and Assessment", JAMA, Vol. 282, No. 9, p. 2 (Sep. 1, 1999).

Claim 26: The simulator suggested by Cai in view of Chosack does not describe a second user interface device connectable to the network and comprising a second display interface for enabling a second user to monitor to movement of the medical device. It is generally known in the field of simulation devices to provide interfaces allowing instructors and observers to monitor training. *See, e.g. Pollak, col. 1:17-24.* Pollak discloses an analogous training simulator having a monitoring station comprising a second user interface device connectable to the network and comprising a second display interface for enabling a second user to monitor to movement of the device in a simulated scenario. *See fig. 2, 7, 8; col. 1:56-3:58.* One of ordinary skill in the art consider techniques from training simulations in other fields in medical training. *See, e.g., Issenberg et al., "Simulation Technology for Health Care Professional Skills Training and Assessment", JAMA, Vol. 282, No. 9, p. 2 (Sep. 1, 1999).* Hence, it would have been obvious to an artisan at the time of the invention to modify the simulator suggested by Cai in view of Chosack, wherein a simulator is used for training users to operate a medical device within the simulated body cavity, to add the feature of a monitoring station comprising a second user interface

device connectable to the network and comprising a second display interface for enabling a second user to monitor to movement of the medical device. As described by Pollak, the modification would enhance the device by giving an instructor a consistent and easy-to-use graphical interface to control and monitor a training scenario. *See col. 2:43-3:4.*

Claims 27 and 56: Pollak additionally teaches a second display interface displaying selectable options enabling a second user to select or change parameters of the simulator and wherein the selection causes the three dimensional image of the simulated environment displayed to a first user to change or reflect the changed parameters. *See col. 3:9-13, 5:44-59.* Hence, when the prior art is taken as a whole, the combination of Chosack with Pollak, wherein the movement of a medical device inside a body cavity is simulated using a manikin, it suggests a second display interface displaying selectable options enabling a second user to select or change anatomical or physiological parameters of the simulated body cavity and wherein the selection causes the three dimensional image of the simulated body cavity displayed to a first user to change or reflect the changed parameters.

Claim 29: Chosack discloses the system is connectable to a database of patient images or medical data. *See fig. 2(42); col. 12:5-36.*

Claims 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cai in view of Chosack, Pollak and Isenberg, as applied to claim 26 above, in further view of Hon, U.S. Patent 6,074,213 (Jun. 13, 2000).

The medical trainer suggested by the Cai in view of Chosack, Pollak and Issenberg describes all the features of the claim except enabling the first user display to display the information on the second user display. It is well known in training devices to allow users at different stations to selectively view

the same image so that the users, instructors or observers interact on a common perspective. For example, Hon discloses an analogous training system which enables a first user display to display the information on the second user display. *See fig. 9, 14, 17.* It would have been obvious to an artisan at the time of the invention to modify the medical training simulator suggested by Cai in view of Chosack, Pollak and Isenberg, wherein an instructor/operator monitors the simulation from a second display station, to add the feature of enabling the first user display to display the information on the second user display to allow users at different stations to selectively view the same image so that the users, instructors or observers share a common perspective.

Claims 46, 50, 51, 60 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai in view of Chosack, as discussed above, in further view of Merril, U.S. Patent 6,106,301 (Aug. 22, 2000).

Claims 46 and 59: The simulator suggested by Cai in view of Chosack discloses all the features of the claim except simulating the deployment of a balloon within the body cavity comprising a delivery mechanism for controlling delivery of fluid through the balloon-inflating device to the balloon; a pressure sensor for monitoring pressure of a fluid delivered to the balloon by the balloon-inflating device and an electrical pressure meter for reading pressure determined by the pressure sensor, the electrical pressure meter being connectable to a processor and for transmitting a signal corresponding to a pressure value to the processor. Merril discloses an analogous system for simulating minimally invasive procedures wherein the device simulates deployment of a balloon within the body cavity comprising a delivery mechanism for controlling delivery of fluid through the balloon-inflating device to the balloon; a pressure sensor for monitoring pressure of a fluid delivered to the balloon by the balloon-inflating device and an electrical pressure meter for reading pressure determined by the pressure sensor, the electrical pressure meter being connectable to a processor and for transmitting a signal corresponding to a pressure value to

the processor. *See fig 2; col. 7:1-11, 16:11-41.* In view of Merril, it would have been obvious to an artisan at the time of the invention to modify the simulator suggested by Cai in view of Chosack to add the features of simulating deployment of a balloon within the body cavity comprising a delivery mechanism for controlling delivery of fluid through the balloon-inflating device to the balloon; a pressure sensor for monitoring pressure of a fluid delivered to the balloon by the balloon-inflating device and an electrical pressure meter for reading pressure determined by the pressure sensor, the electrical pressure meter being connectable to a processor and for transmitting a signal corresponding to a pressure value to the processor. As described by Merril, the modification would allow training in angioplasty and stent deployment procedures. *See id.*

Claims 50 and 51: Merril discloses simulating a minimally invasive procedure in blood vessels. *See col. 8:17-29.* It is within the implicit knowledge of an artisan that minimally invasive procedures are performed in the blood vessels of the brain and heart. Hence, it would have been obvious to an artisan at the time of the invention to modify the medical device simulate discloses by Chosack, wherein the device simulates a minimally invasive medical procedure, to add the feature of simulate the movement of devices through blood vessels in the brain and heart. As suggested by Chosack, the modification would enhance the device by allowing users to gain skills necessary to perform procedures without requiring practice. *See col. 5:50-57*

Claim 60: Merril discloses the operation being the injection of a radio-opaque fluid within the body cavity or lumen. *See col. 6:45-65.*

Allowable Subject Matter

Claims 44 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new grounds of rejection necessitated by the applicant's amendments.

Prior Art, Not Relied On

The following prior art of record is not relied upon but is considered pertinent to applicant's disclosure: Cai et al., *Catheter Design, Validation, and Presentation Using Cathworks*, International Journal of Robotics and Automation, Vol. 15, No. 1, 2000 discloses a finite element method for simulating catheters.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Ashburn whose telephone number is 703 305 3543. The examiner can normally be reached on Monday thru Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H Banks can be reached on 703-308-1745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

s.a.

MARK SAGER
PRIMARY EXAMINER